

REMARKS

The Office Action dated November 7, 2005, has been received and carefully noted. The following remarks are submitted as a full and complete response thereto. Claims 3-8 were withdrawn pursuant to a Restriction Requirement dated September 29, 2005. Claims 1 and 2 are pending and respectfully submitted for consideration.

Rejection Under 35 U.S.C. § 103

Claims 1 and 2 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chiba et al. (Suzuki Segregation and Dislocation Locking in Supersaturated Co-Ni Based Alloy, hereinafter "Suzuki Segregation") in view of Chiba et al. (WO 02/24967 A1, hereinafter "Chiba"). The Applicants note that the Office Action cited Chiba et al (US 2004/0025989) as the English language version of Chiba et al. (WO 02/24967 A1). The Applicants also note that one of the inventors of the present application, Akihiko Chiba, is the same inventor of Chiba and author of Suzuki Segregation.

The Office Action took the position that Suzuki Segregation discloses many of the claimed elements of the invention with the exception of an alloy having a fine twin structure, a parent phase and Co_3Mo or Co_7Mo_6 precipitated at boundaries of the fine twin structure and the parent phase. The Office Action also acknowledged that Suzuki Segregation does not disclose at least one kind of 0.007 to 0.10% of REM; 0.001 to 0.010% of B; 0.0007 to 0.010% of Mg and 0.001 to 0.20% of Zr. Chiba was cited for curing this deficiency.

As a preliminary matter, the Applicants respectfully submit that the Suzuki Segregation and Chiba Co-Ni based alloys are different from the Co-Ni based heat-resistant alloy of the present invention. In the present invention, the aging heat treatment

is performed by applying stress. Such a heat treatment causes precipitation of fine deposit. Specifically, a fine twin structure and high density of stacking fault can be obtained by the stress heat treatment. In contrast, the references disclose an aging heat treatment that is performed with no stress.

The Applicants respectfully submit that Suzuki Segregation and Chiba do not disclose or suggest the claimed features of the invention and therefore cannot provide the critical and non-obvious advantages of the present invention.

More specifically, in the present invention, large amounts of fine twin structure can be obtained by the stress heat treatment. Therefore, fine deposits such as Co_3Mo or Co_7Mo_6 are precipitated at boundaries of the fine twin structure and the parent phase. Moreover, since the density of the stacking fault is large, a large number of deposits are precipitated at a surface of the stacking fault. Therefore, the structure can be strengthened in a high temperature by finely dispersed deposits and the fine twin structure.

In contrast, in Chiba, aging is performed at a temperature of from 500 to 800°C for 1 to 50 hours with no stress after cold working. In such a heat treatment, only deposits are obtained. Chiba cannot be expected to obtain high strength in a high temperature since the deposits are coarse.

In the present application, another method for obtaining fine twin structure and fine deposits other than stress heat treatment is disclosed. That is, a material is subjected to solid solution heat treatment, cold or warm working with a reduction rate of 40% or more, and high temperature aging heat treatment at 800 to 950°C for 0.5 to 16 hours. Fine twin structure and fine deposits cannot be obtained by Chiba in which aging heat treatment is performed at 500 to 800°C for 0.1 to 50 hours.

With respect to claims 1 and 2 the Applicants respectfully submit that the combination of Suzuki Segregation and Chiba fails to disclose or suggest the claimed features of the invention. Claims 1 and 2 recite a fine twin structure. According to the specification of the present application, in order to form a fine twin structure, an aging heat treatment is performed in which a heat-resistant alloy is heated in an adequate time to a temperature of 600 to 800 degrees C in a condition of applying stress after the solid solution heat treatment. See paragraph [0008] of the specification of the present application. The Office Action took the position that Suzuki Segregation discloses "aging the alloy at 943K (670 degrees C) in a condition of applied stress for about 1.1 hours. The Office Action asserted that this treatment would inherently produce the claimed results of having a fine twin structure, a parent phase and Co_3Mo or Co_7Mo_6 precipitated at boundaries of the fine twin structure and the parent phase. See page 3, lines 14-17 of the Office Action.

In contrast, Suzuki Segregation discloses that a dislocation structure of a sample was aged at 943K for 2 hours after deformation approximately 10% at room temperature. (Emphasis Added). See page 2113, last paragraph of Suzuki Segregation. As such, Suzuki Segregation discloses deformation before heat treatment, while present invention discloses deformation after heat treatment. Thus, Suzuki Segregation discloses an opposite aging process. Therefore, it would not be inherent that the aging process in Suzuki Segregation forms a fine twin structure. Further, Suzuki Segregation does not disclose or suggest that a fine twin structure is formed. Therefore, Suzuki Segregation does not disclose or suggest the features of the invention as recited in claims 1 and 2.

The Applicants respectfully submit that Chiba fails to cure the deficiencies in Suzuki Segregation with respect to claims 1 and 2, as Chiba also does not disclose or suggest at least an alloy having a fine twin structure. Further, Chiba does not disclose or suggest at least the feature of a parent phase and Co_3Mo or Co_7Mo_6 precipitated at boundaries of the fine twin structure and the parent phase. As such, the combination of Suzuki Segregation and Chiba fails to disclose or suggest at least the combination of features of a fine twin structure as recited in claims 1 and 2.

Under U.S. patent practice, the PTO has the burden under §103 to establish a *prima facie* case of obviousness. In re Fine, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Both the case law of the Federal Circuit and the PTO itself have made clear that where a modification must be made to the prior art to reject or invalidate a claim under §103, there must be a showing of proper motivation to do so. The mere fact that a prior art reference could arguably be modified to meet the claim is insufficient to establish obviousness. The PTO can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. Id. In order to establish obviousness, there must be a suggestion or motivation in the reference to do so. See also In re Gordon, 221 USPQ 1125, 1127 (Fed. Cir. 1984) (prior art could not be turned upside down without motivation to do so); In re Rouffet, 149 F.3d 1350 (Fed. Cir. 1998); In re Dembiczak, 175 F.3d 994 (Fed. Cir. 1999); In re Lee, 277 F.3d 1338 (Fed. Cir. 2002). The Office Action restates the advantages of the present invention to justify the combination of references. There is, however, nothing in the applied references to evidence the desirability of these advantages in the disclosed structure.

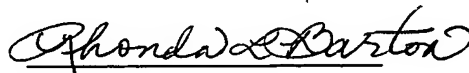
Conclusion

In view of the above, the Applicants respectfully submit that the Office Action has failed to establish a *prima facie* case of obviousness for purposes of a rejection of claims 1 and 2 under 35 U.S.C. §103. Accordingly, the Applicants respectfully request withdrawal of the rejections, allowance of claims 1 and 2 and the prompt issuance of a Notice of Allowability.

Should the Examiner believe anything further is desirable in order to place this application in better condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account No. 01-2300, **referencing Attorney Dkt. No. 108421-00075.**

Respectfully submitted,



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Enclosure: Petition for Extension of Time (two months)

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